



LNG: Meeting California's Energy Needs

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Workshop*

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Today's Workshop

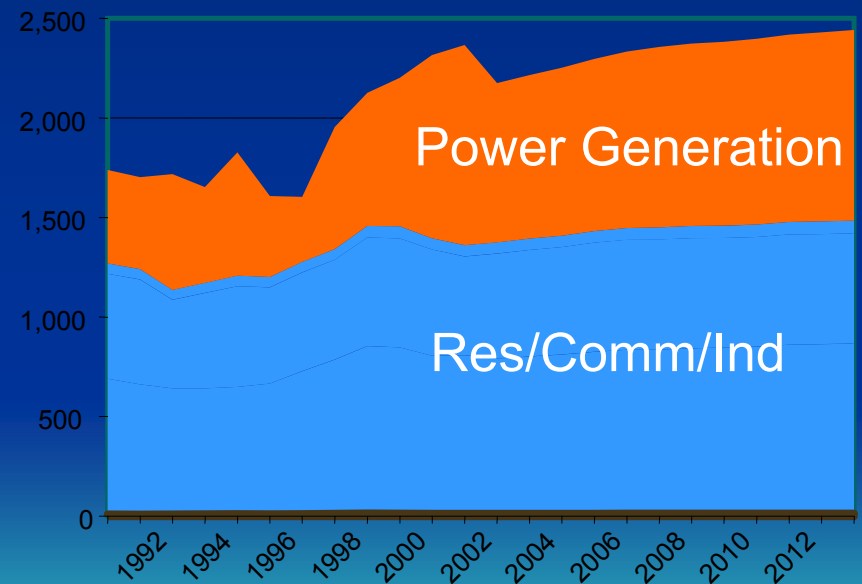
- Why the Sudden Interest in LNG?
- Energy Policy Affecting LNG
- California's Interest in LNG
- Issues to Resolve and Actions Being Taken
- California's Permit Coordination
- Need for Public Information
- Concluding Remarks



Why the Sudden Interest for LNG on the West Coast?

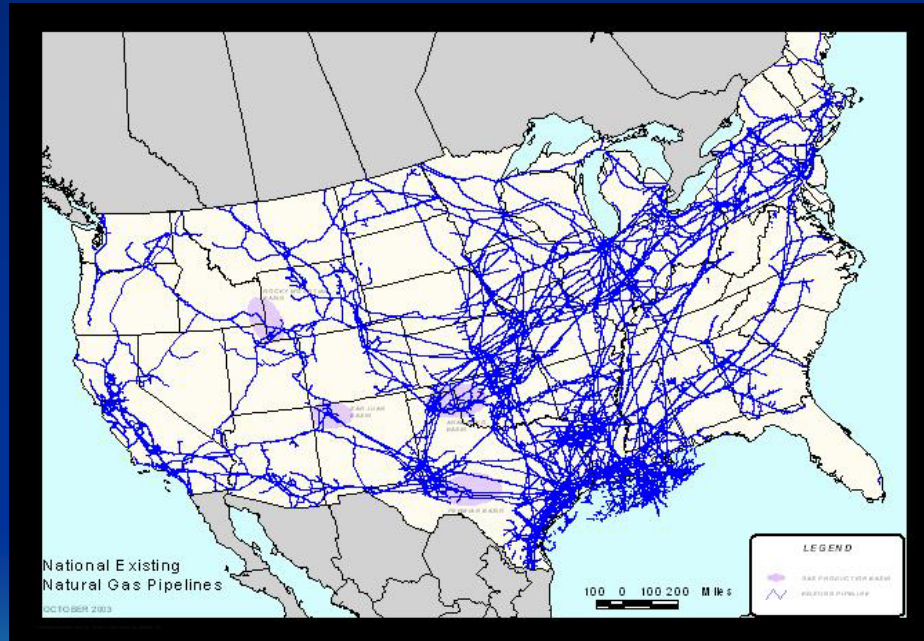
- California's natural gas demand is increasing.
- Power generation accounts for as much as 40% of natural gas consumed in California.

California Natural Gas Demand (MMBtus)





Why the Sudden Interest for LNG on the West Coast?

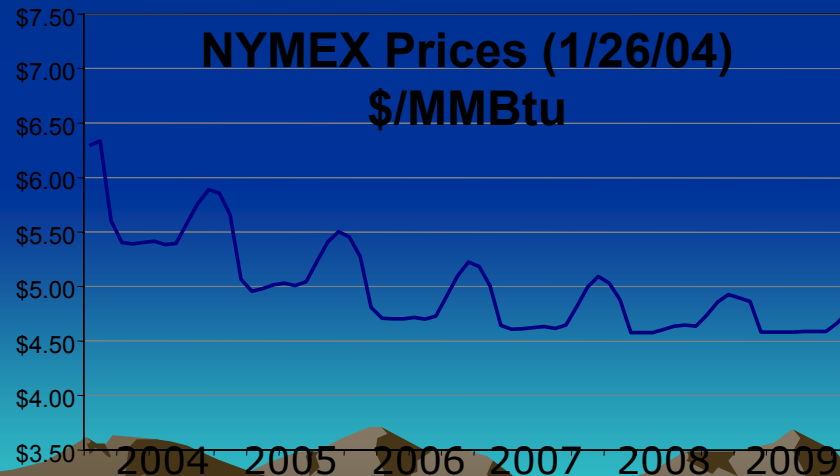


- California is at the end of a long, “leaky” pipeline network.
- Demand east-of-California continues to impact delivery capacity to California.



Why the Sudden Interest for LNG on the West Coast?

- Natural gas prices are expected to exceed \$4.50 per MMBtu in the future.





State Policies on LNG Are Developing

- Governor Schwarzenegger has expressed an interest in LNG.
- Integrated Energy Policy Report (CEC)
 - Recognizes LNG as a potential energy supply source.
 - Recognizes value of LNG to California.
- Energy Action Plan Commitment (CEC/CPUC/CPA)
 - “License and, where appropriate, fund construction of new energy facilities that are consistent with the reliability, economic, public health, and environmental needs of the state.”
 - “Partner with governmental and other groups in western North America to pursue commonly held energy goals.”



Energy Policy Affecting LNG

- California Public Utilities Commission
 - Recently issued rulemaking on natural gas policies will include LNG contracting issues.
- Coordination Among State Agencies
 - CEC, CPUC, State Lands Commission, California Coastal Commission all committed to working together.
 - Agencies also coordinating with federal and local agencies.



Potential Value of LNG

- LNG identified as a supply option
 - New pipelines also identified
- LNG imports specifically analyzed
- LNG provides significant economic benefit to California
 - Potential overall price reduction
 - Supply diversity
 - Additional import capacity



CNG Vessel
Photo courtesy of CH-IV International, <http://ch-iv.com>



California's Future Natural Gas Needs

- Integrated Energy Policy Report
- Electricity and Natural Gas Assessment Report
- Natural Gas Market Assessment Report

CEC Reports available at www.energy.ca.gov



California's Future Natural Gas Needs

General Observations

- Current supply/infrastructure is adequate
- Prices are higher than desired
- Demand for natural gas is growing
 - In spite of aggressive EE and renewables activity
- Additional import capacity is needed
- Prices will continue to increase
- Prices will become more volatile





Why the Sudden Interest for LNG on the West Coast?

Potential Benefits

- Delivery capacity, similar to a pipeline
- Additional supply, similar to a gas field
- Additional storage, similar to a local facility
- Supply diversity, gas from a new, price-competitive source
- Fuel diversity, liquid fuel for transportation





Potential Value of LNG

- Terminals in Baja and California
- California energy policy endorses West Coast terminals
- Value to Baja
 - Supply diversity for Baja
 - Balanced with pipes
- Value to California
 - Reduces risk of supply disruptions
 - Least-cost access to LNG

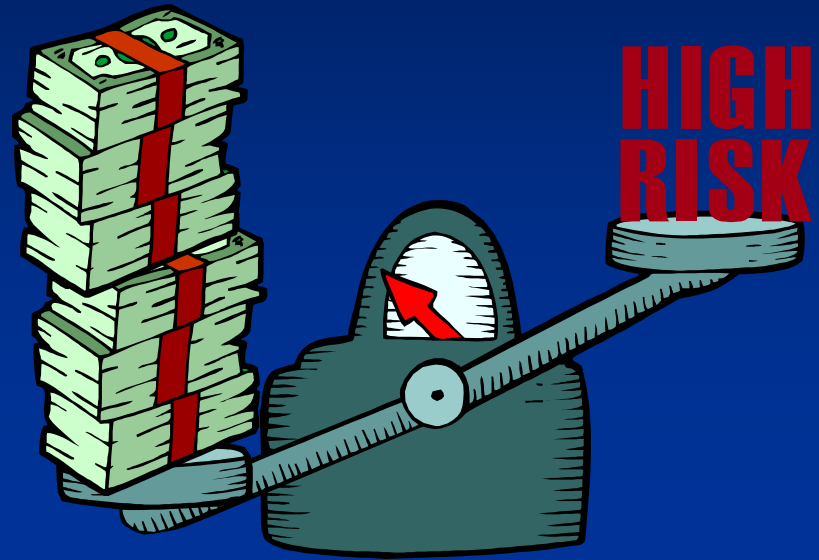


Elba Island Import Terminal, Georgia
Photo Courtesy of CH-IV International, <http://ch-iv.com>



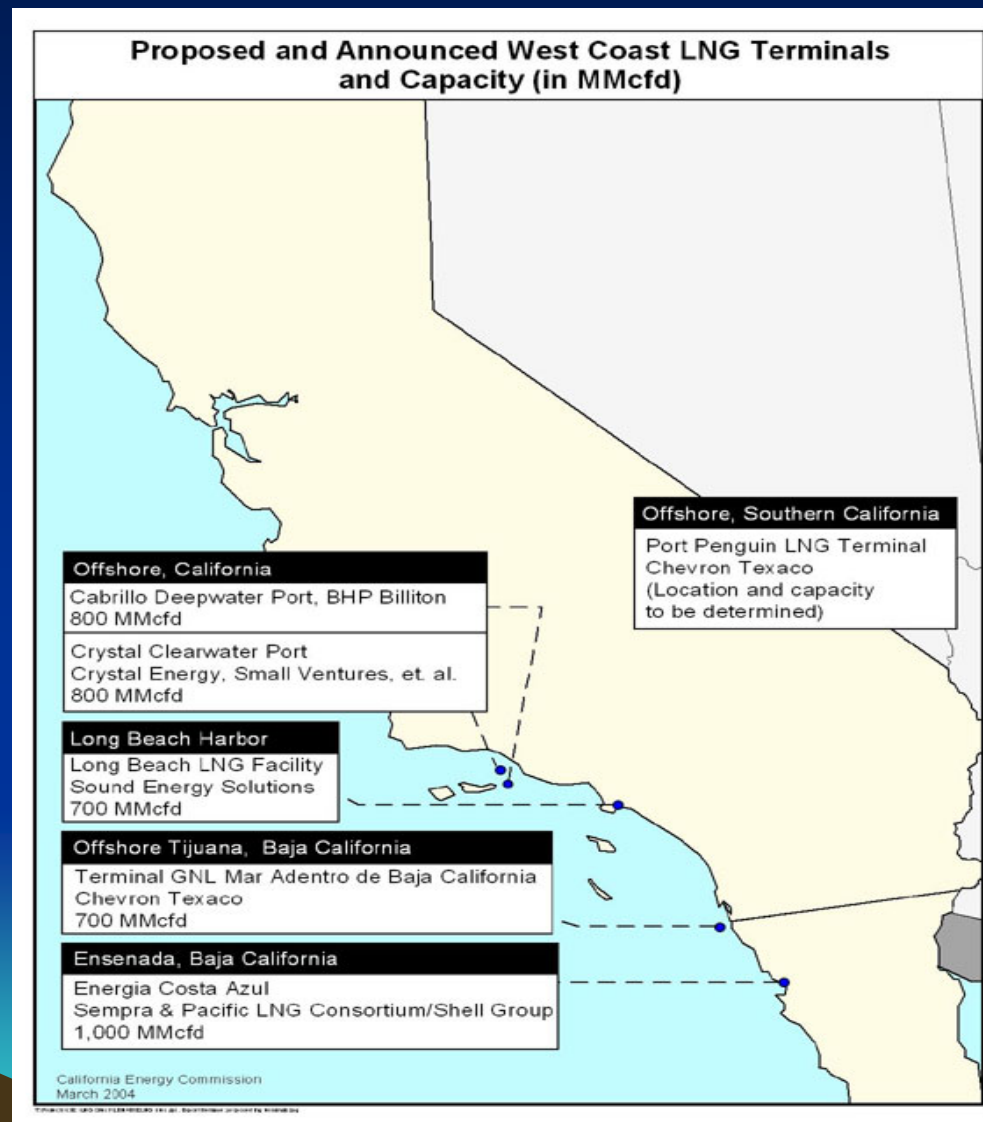
Potential Societal Risks of LNG

- Terminals:
 - High consequence / low probability events
 - Safety risks
 - Environmental risks
- Supplies:
 - Reduced control over supply source
 - Supply disruption could have significant impacts





West Coast LNG Proposals





Issues Needing Resolution

- Clarify natural gas quality standards
- Provide equal access to markets in California
- Define role of longer term purchase contracts
- Clarify potential pipeline upgrades
- Reduce uncertainty in terminal permitting
- Clarify international trade issues
- Provide additional public information
- Define public safety risks in more detail





Natural Gas Quality Standards

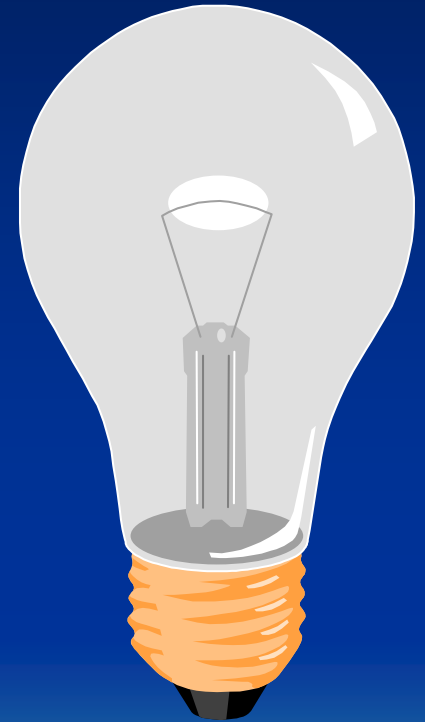
- State gas quality standards
 - Pipeline Quality (CPUC)
 - CNG Vehicles (CARB)
- Differing standards in other states
- Worldwide LNG Btu content too hot
 - NOx emissions too high
- Little flexibility in standard





Actions Underway

- Natural gas quality standards
 - Joint research study on emissions—SoCalGas
 - ARB reconsidering standard
 - Looking for LNG developer commitment
 - LNG gas conditioning at import terminal
 - LNG gas conditioning at export terminal
 - Natural Gas Working Group
 - FERC Technical Conference
 - ARB resolution expected by early next year





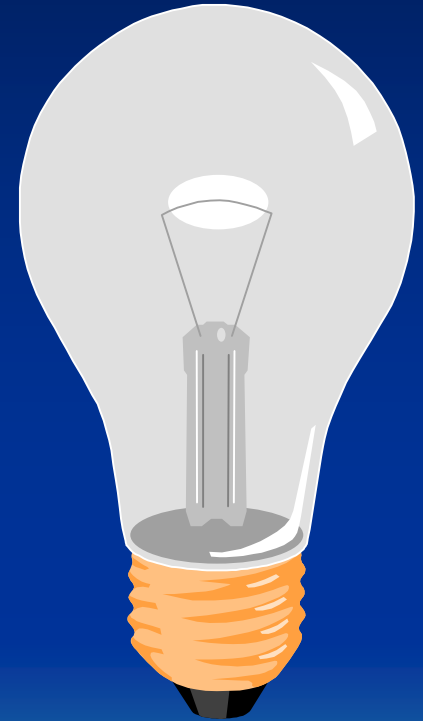
Potential Pipeline Upgrades

- In-state pipe system not designed for significant flows from West or South
- Flows from Baja
 - Can use existing pipe/Ehrenberg hub
 - Limited new capacity
 - Significant flows require pipe upgrades
- Flows from California coast
 - Require some downstream pipe upgrades



Actions Underway

- Potential pipeline upgrades
 - CPUC proceeding last year
 - Defined options
 - Defined preliminary costs
 - NG Infrastructure Workshop last December
 - CPUC NG OIR addressing issue
 - www.cpuc.ca.gov





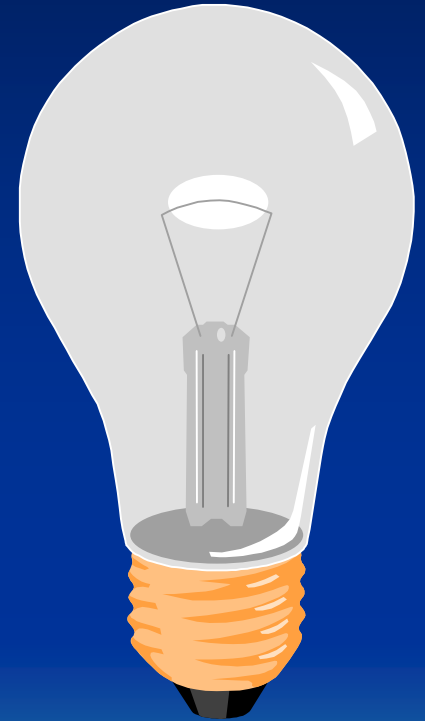
Equal Access to Markets

- In-state pipe network designed to receive gas from East and North.
- Regulatory rules originally designed for pipelines and domestic supply sources.
- Delivery points and acceptance rules need reexamination.



Actions Underway

- Equal Access to Markets
 - NG Infrastructure Workshop last December
 - CPUC Natural Gas OIR
 - Specifically addressing LNG access
 - Expect preliminary ruling later this year





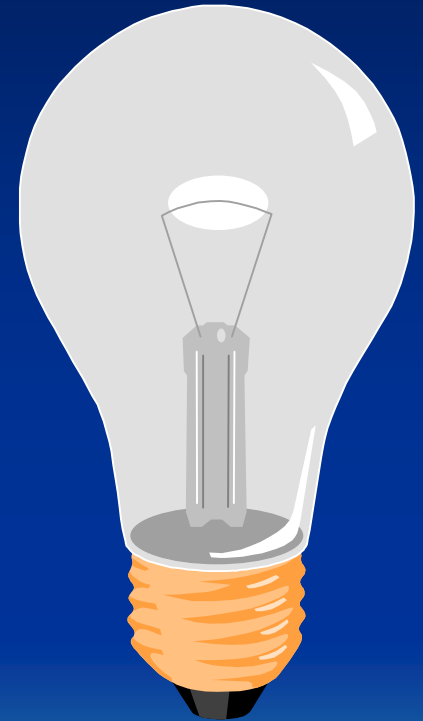
Longer Term Purchase Contracts

- LNG terminals are capital intensive.
- Investors need longer term assurance.
- California has a mixed history on long term contracts.
 - Risks of overpaying
 - Risks of buying too much
- Can ratepayer protection be balanced with investors' needs?



Actions Underway

- Longer term purchase contracts
 - Integrated Energy Policy Report
 - Energy Action Plan
 - CPUC NG OIR
 - Long term vs. longer term
 - Portfolio approach to contracts
 - Preliminary guidance later this year





Uncertainty in Terminal Permitting

- No single stop permitting agency
- Many agencies involved
- Local communities very concerned about safety risks
- LNG is “new” to California





Actions Underway

- Uncertainty in terminal permitting
 - California established the LNG Interagency Permitting Working Group
 - Agency review is now coordinated
 - FERC/USCG and State working closely together

Public information available at
www.energy.ca.gov/lng



Clarify International Trade

- NAFTA addressed US exports of NG to Mexico, not imports
- Need symmetry in trade
- Need certainty in long term trade policies



Actions Underway

- Clarify international trade
 - Border Governor's Conference will soon address issue
 - Stanford University conducting research
 - Energy Commission will be discussing this issue with our Mexican colleagues
 - Initiating discussions with US DOE



Public Information

- LNG is “new” to California
- Public agencies need objective information
- Local communities need objective information



Actions Underway

- Public information
 - Training session for public agency staff
 - LNG Website—www.energy.ca.gov/lng
 - Educational presentations for public
 - Project permitting websites
 - www.ferc.gov
 - www.slc.ca.gov
 - www.cabrilloport.ene.com



Issues Needing Resolution

- These issues can be resolved from a technical perspective.



Public Issues Driving Siting Decisions

- Safety
- Risk from terrorism
- Inadequate information
- Public perception of safety risk



Public Issues Driving Siting Decisions

- SAFETY !!!



Public Issues Driving Siting Decisions

- The safety issue needs to be defined and addressed to the satisfaction of the public—from their perspective!!



Public Education Activities

- Local public forums
 - Sponsored by government and community groups
- Local public meetings on permitting
 - Sponsored by lead governmental permitting agency
 - Supported by involved permitting agencies
 - Solicit public input/concerns/issues
- Established government websites for project permitting
 - www.cabrilloport.ene.com
- Established government website for LNG information
 - www.energy.ca.gov/lng



Public Information Tools

- California Energy Commission LNG Website
 - Objective information
 - Verifiable
 - Updated as needed
 - Useful to state/local agencies
 - Useful to local community groups
 - Addresses public's concerns
 - Provides a balanced perspective



Public Information Issues Needing Resolution

- Develop more detailed safety information
- Define public vs. confidential information boundary
- Provide adequate information to public to address their needs
- Ensure that government focuses on twin objectives:
 - Ensuring an adequate supply of energy
 - Protecting the environment and public health and safety



Government Coordination Model

- California's LNG Interagency Permitting Working Group
 - Established in May 2003
 - Mission: to coordinate among potential permitting agencies and provide an effective response to future LNG permit applications
 - Includes federal/state/local agencies
 - Declared intent to work together
 - Declared intent to prepare joint fed/state environmental documents
 - Meets regularly
 - Chaired by California Energy Commission



Government Coordination Model

- LNG Interagency Working Group
 - Common information to all agencies
 - Helped define roles and responsibilities
 - Briefings by LNG developers
 - Ensures developers are fully aware of public and environmental concerns
 - Provides informal, early issue resolution
 - Focuses on common objectives and actions to achieve needed outcomes



Government Coordination Model

- Differing roles and responsibilities
- California Energy Commission
- California Public Utilities Commission
- State Lands Commission
- Port of Long Beach



LNG Import Terminals: How Will California Respond?

- LNG offers significant potential benefits
- LNG also poses potentially significant safety risks
- California has successfully analyzed controversial projects
- California is taking action to allow LNG to be fully considered
 - Baja terminals
 - California terminals
- California has established a program to provide public education
- California has organized its governmental agencies to effectively respond to permit applications



Conclusions

- Gas availability will become increasingly tighter as gas demand grows in North America.
- Pipeline capacity and storage expansions are critical to satisfying future natural gas demand.
- LNG has great potential to serve the energy needs of a growing North American population.

California is developing plans for an energy future that potentially includes LNG.



Thank you.

Questions?